

CITY OF
LEWISTON, IDAHO



Wastewater System Master Plan – Amendment No. 2



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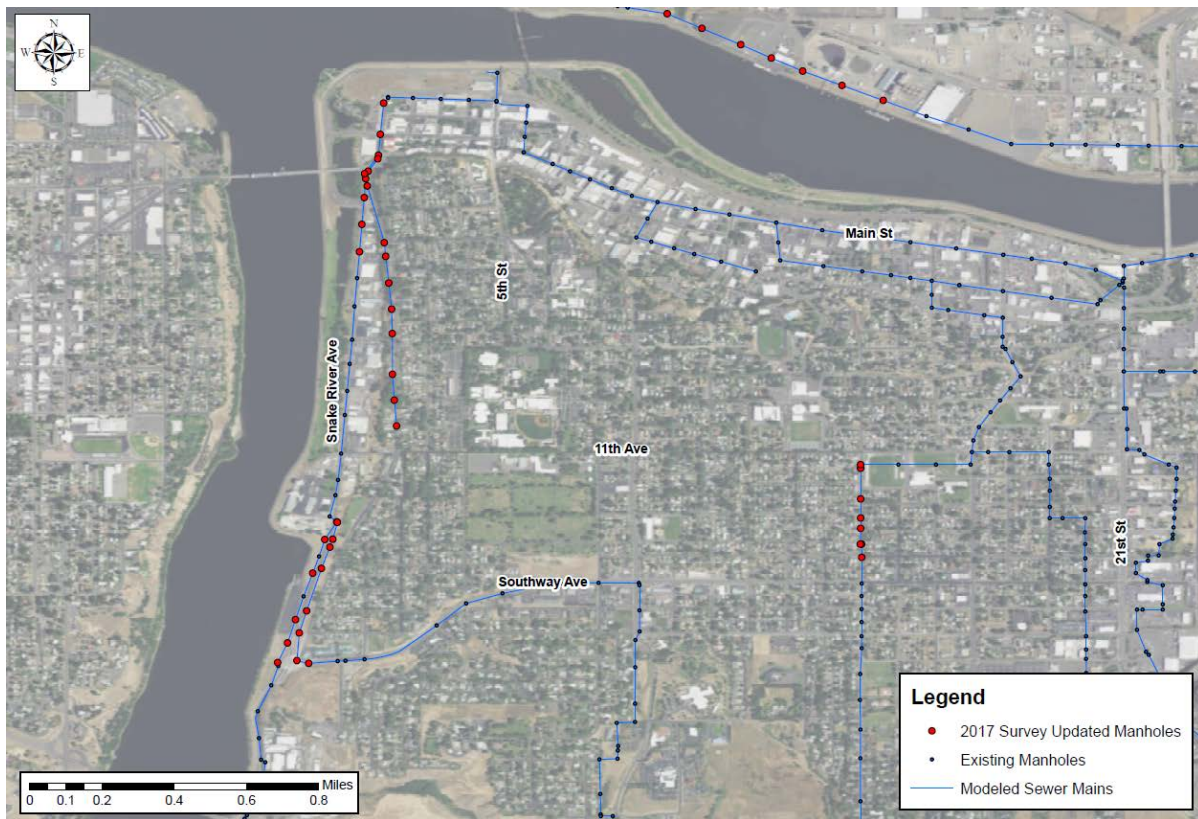
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BACKGROUND

The City of Lewiston (City) completed a Wastewater System Master Plan in November 2016. Recent field work and surveying of sections of pipeline have revealed that there are some areas where the City-provided sewer invert and diameter information would benefit by having additional verification. Prior to moving forward with the design and implementation of Priority 1C and 1D projects, the City desired to complete field checks for Priority 1C and 1D improvements and update the Capital Improvement Plan (CIP).

The City contracted with Keller Associates, Inc. (Keller) to perform surveying work at five locations throughout Lewiston to check the inverts and diameters of the existing sewer mains (Figure 1). The updated information from the surveying was used to modify the collection system model generated as a part of the November 2016 master plan. In addition to the five locations included in the surveying portion of this analysis, the City has already completed surveying at two other locations: the first, was gathered as part of the pre-design for Idaho Transportation Department (ITD) improvements to US-12 near its intersection with 18th Street in downtown Lewiston; the second was near 23rd Street. Record drawings for the pipelines near 23rd Street indicated that they are 8-inch sewer mains instead of the 10-inch to 12-inch diameter pipelines that were reported during the master planning effort.

Figure 1 – Manholes with Updated Survey Information



2017 Survey Updates

Surveying was completed at the Priority 1C/D project locations in June 2017. The updated survey information generally revealed reductions in or the non-existence of the adverse grades previously identified in the City's GIS and documented in the 2016 Master Plan. A sample profile from before and after the updated surveying work is shown in the attachments at the end of this amendment.

The collection system model was updated to include the new information and model scenarios were run for existing, 2035, and 2055 projected flows (figures included in attached material). A brief comparison of the model results from before and after the survey work at each location is presented below.

North Lewiston Model Results

The original modeling completed during the Master Plan showed surcharging of greater than one foot in five manholes upstream of the adverse grade location. This surcharging was present in all three of the modelling scenarios (existing, 2035, and 2055). After updating the inverts with the current survey data, the model results do not show any surcharging in the existing or 2055 conditions. This portion of the Priority 1C project was removed from the CIP. Figure 2 shows the location of the surveying completed in this area. Model results for the original model and invert data along with the update model and survey data are included in the appendix and is representative of other model results discussed in the amendment.

Figure 2 – North Lewiston Manholes Surveyed



Snake River Avenue

A reported grade break near the intersection of Snake River Avenue and Main Street created surcharging of less than one foot in two manholes upstream during the initial existing conditions modeling. The 2055 modeling showed surcharging extending upstream to an additional four manholes (six total manholes surcharged). The original CIP included significant upgrades along Snake River Avenue to alleviate pipe capacity concerns. The updated model results (reflecting updated survey conditions) show the entire length except one pipe segment flowing at less than 80% capacity with a significant portion flowing at less than 70% of capacity. As the update flows do not reach the triggers for upgrades previously identified, this project has been moved from a Priority 1 to a future improvement. A brief review of the Pipe Condition Rating included in the Master Plan shows three pipe segments along Snake River Avenue rated as an 8 or higher (criteria used in pipe replacement budget to target over the next 20 years). Keller recommends reviewing the CCTV logs for these pipeline segments to identify whether spot repairs or whole line replacement are warranted at this time ahead of planned roadway improvements. Figure 3 shows the location of the manholes surveyed.

Figure 3 – Snake River Ave and Main Street Manholes Surveyed



Snake River Grade and Prospect Avenue

Two small adverse grade segments were believed to exist along Snake River Grade and Prospect Avenue. Both caused minimal surcharging of less than one foot in one manhole for all modeling scenarios during the Master Plan modeling. The updated survey data eliminated the surcharging within these segments for all model scenarios. This portion of the Priority 1C project was removed from the CIP. Figure 4 shows the locations of the manholes surveyed.

Figure 4 – Snake River Grade and Prospect Ave Manholes Surveyed



14th Street

The initial modeling revealed two sewer lines along 14th Street that were constructed with adverse grades. This resulted in surcharging of less than one foot in two manholes. The updated model results show the pipelines were constructed with positive slopes and no surcharging manholes. This portion of the Priority 1C project was removed from the CIP. Figure 5 shows the locations of the surveyed manholes.

Figure 5 – 14th Street Manholes Surveyed



Southway Avenue and Snake River Avenue

After completion of the City's Master Plan, record drawings were found for the sewer mains near the intersection of Southway Avenue and Snake River Avenue. The record drawings showed that a section of sewer main previously identified as 15-inch in diameter is actually 24-inch gravity sewer. Field surveying confirmed the pipe sizes and the model was updated as a result. The original model results showed that the section of pipe was at capacity with surcharging in one manhole. By 2055, the surcharging was projected to increase to greater than a foot of depth and spread to a total of six manholes. The updated model, with 24-inch sewer mains, shows this pipe segment flowing at less than 50% capacity for the existing scenario and increasing to approximately 60% of its capacity by 2055. This portion of the Priority 1D project was removed from the CIP. Figure 6 shows the locations of the manholes surveyed.

Figure 6 – Southway Ave and Snake River Ave Manholes Surveyed



US-12 and 18th Street Modeling Update

The original data showed an inverse slope resulting in the pipe rising over 1.5-feet in elevation as it flowed toward the wastewater treatment plant. According to the model, this caused sewage to back-up about 1,900-feet in the sewer mains in all model scenarios. Keller received updated survey data from the City that was gathered as a part of an ITD improvement project. The survey data showed that the pipeline is essentially flat (0.02' rise in elevation going downstream) and the updated model results show that the pipelines near US-12 and 18th Street have adequate capacity through the 2055 model simulations. This portion of the Priority 1C project was removed from the CIP.

23rd Street Modeling Update

The City of Lewiston recently became aware that several sewer pipelines located along 23rd Street, previously identified by the City as 10-inches or 12-inches in diameter, were actually 8-inch in diameter. Keller Associates had previously identified this section of pipeline as a Priority 2 improvement project for capacity upgrades. The original model results showed pipelines flowing with a depth over diameter (d/D) ratio of 0.5 to 0.65

during the 2016 peak hour flow condition, then reaching a surcharged condition by 2035. The updated model results show that the pipelines along 23rd Street are flowing with a d/D of 0.55 to 0.7 during an existing peak hour event. While these conditions do result in acceleration when the project is needed, an immediate project improvement is not required. The d/D ratio is less than the trigger depths recommended in the wastewater master plan for initiating the planning phase of a pipeline upsized project (when d/D reaches 0.85 for planning with completed construction when d/D reaches 0.9). By the 2035 model run, however, several pipelines reach capacity with surcharging of 1 to 1.5 feet observed in the area. By 2055 there is significant surcharging through the pipeline. This will remain a Priority 2 project, but will increase the length of pipe needing to be replaced. Keller recommends additional flow monitoring of this stretch in the coming years.

Capital Improvement Plan Impact

The following changes are reflected in the updated Capital Improvement Plan (Table 1). Additionally, an updated CIP map and project sheets are included in the Appendix. The City provided several recent bid tabulations, which were used along with current information from RS Means (a cost estimating database with regional cost information) to update the unit costs for both the CIP and the annual replacement budget. With the removal of many segments of pipeline from the CIP, the total cost of the Priority 1 and 2 improvements were reduced by \$1,244,000 and \$3,666,000 respectively. A summary of the changes includes the following:

- Priority 1C – Removed from CIP
- Priority 1D – Removed 18-inch flow split from project
- Priority 2A – Removed from CIP and placed as a future improvement
- Priority 2C – Expanded to include additional 8-inch pipes to be upsized to 10-inch and 12-inch
- Priority 3A – Removed from CIP and placed as a future improvement

Table 1 – Updated Wastewater Collection Capital Improvement Plan

ID	Item	Primary Purpose	Cost (2017 Dollars)
Priority 1 Improvements (2016 - 2020)			
1a	East Orchards Sewer Expansion Phase 1	Nitrate Reduction	\$ 1,850,000
1d	8-inch Pipeline Reconstruction along 11th Ave and Prospect Ave to 10th Ave	Capacity	\$ 199,000
1e	Lift Station Upgrades	Capacity/Redundancy	\$ 314,000
1f	Engineering Investigation of access options	Operations	\$ 150,000
Total Collection Priority 1			\$ 2,513,000
ID	Item	Primary Purpose	Cost (2015 Dollars)
Priority 2 Improvements (2021 - 2025)			
2b	24th Street North Pipeline Replacement - 3rd Ave N to 1st Ave N	Replacement	\$ 223,000
2c	Pipeline Replacement - 11th Ave to 16th Ave between 21st and 23 St	Replacement	\$ 584,000
2d	East Orchards Sewer Expansion Phase 2	Nitrate Reduction	\$ 5,879,000
2e	Design and Construction of Access Improvements	Operations	\$ 1,395,000
Total Collection Priority 2			\$ 8,081,000
Priority 3 Improvements (Beyond 2025)			
3b	Pipeline Replacement near Lewiston Country Club	Replacement	\$ 720,000
3c	Main Street Pipeline Reconstruction - 9th St to 6th St	Replacement	\$ 304,000
3d	G Street Pipeline Reconstruction 15th St to 16th St	Replacement	\$ 202,000
3e	Pipeline Reconstruction downstream of COSD Warner discharge point	Replacement	\$ 68,000
Total Collection Priority 3			\$ 1,294,000

The Master Plan recommended an annual replacement budget of \$1.124 million based on the CCTV data collected along the modeled sewer mains. This equates to a little over 1% of the collection system or about 4,500 feet of pipe per year. The updated unit costs based on City bids and RS Means information were also used to update the annual replacement budget. Based on this information, the new replacement budget has decreased to \$1.003 million per year.

APPENDIX

Revised Figure 3.1

Revised Figure 3.5

Revised Figure 3.6

Revised Figure 8.1

Original Pipe Profile Upstream of WWTP on North Shore
Survey Updated - Pipe Profile Upstream of WWTP on
North Shore

Revised Collection System Capital Improvement Plan



Legend

Max Surge Height

- $\leq 0'$
- 0 - 1'
- $> 1'$

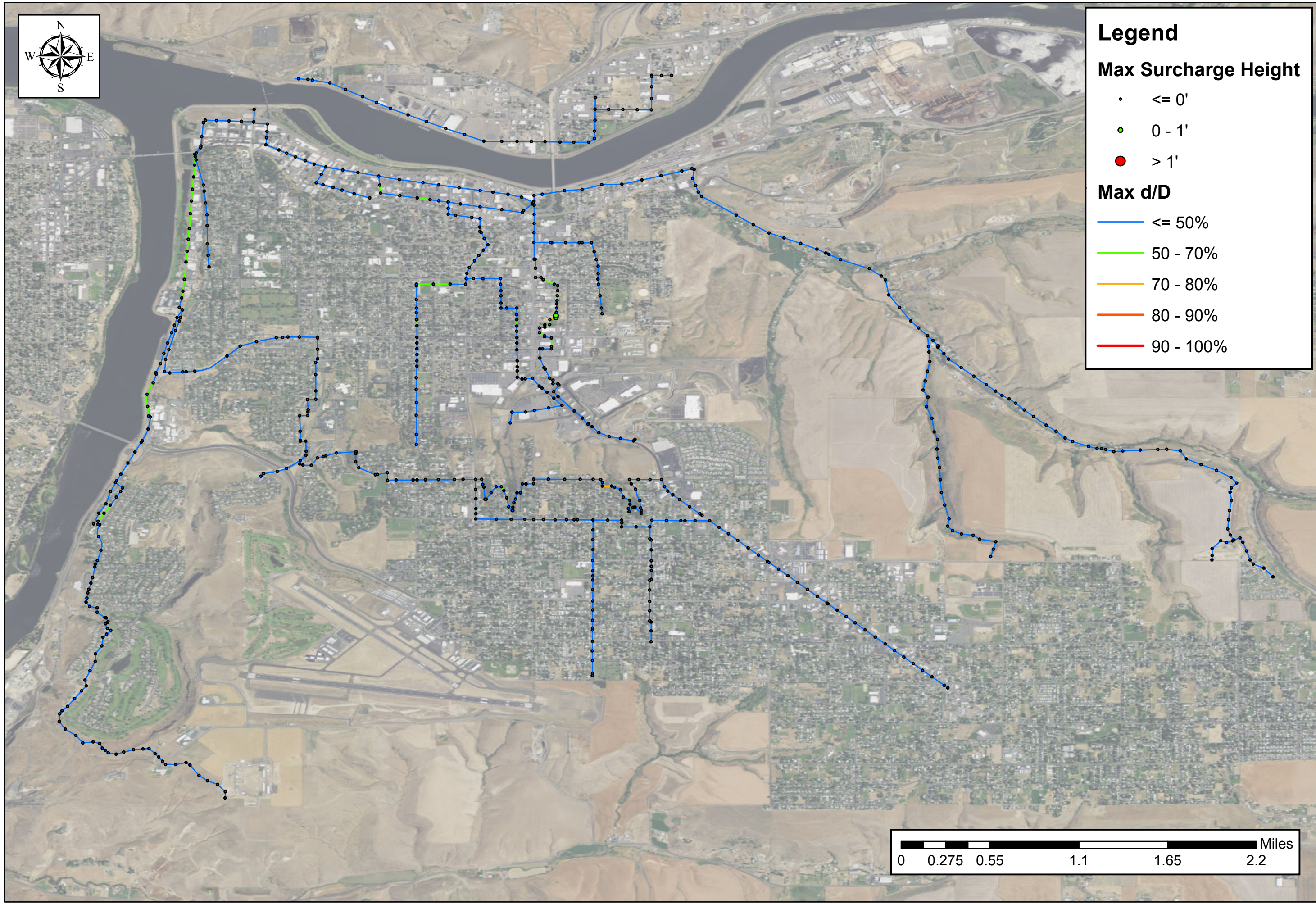
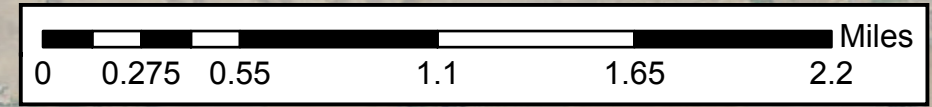
Max d/D

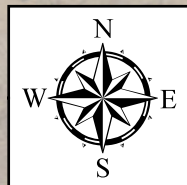
- $\leq 50\%$
- 50 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%



Project:
**AMENDMENT 2 - LEWISTON 2015
WASTEWATER MASTER PLAN**

Title:
**3.1 Revised Existing
System Deficiencies**





Legend

Max Surcharge Height

- $\leq 0'$
- 0 - 1'
- $> 1'$

Max d/D

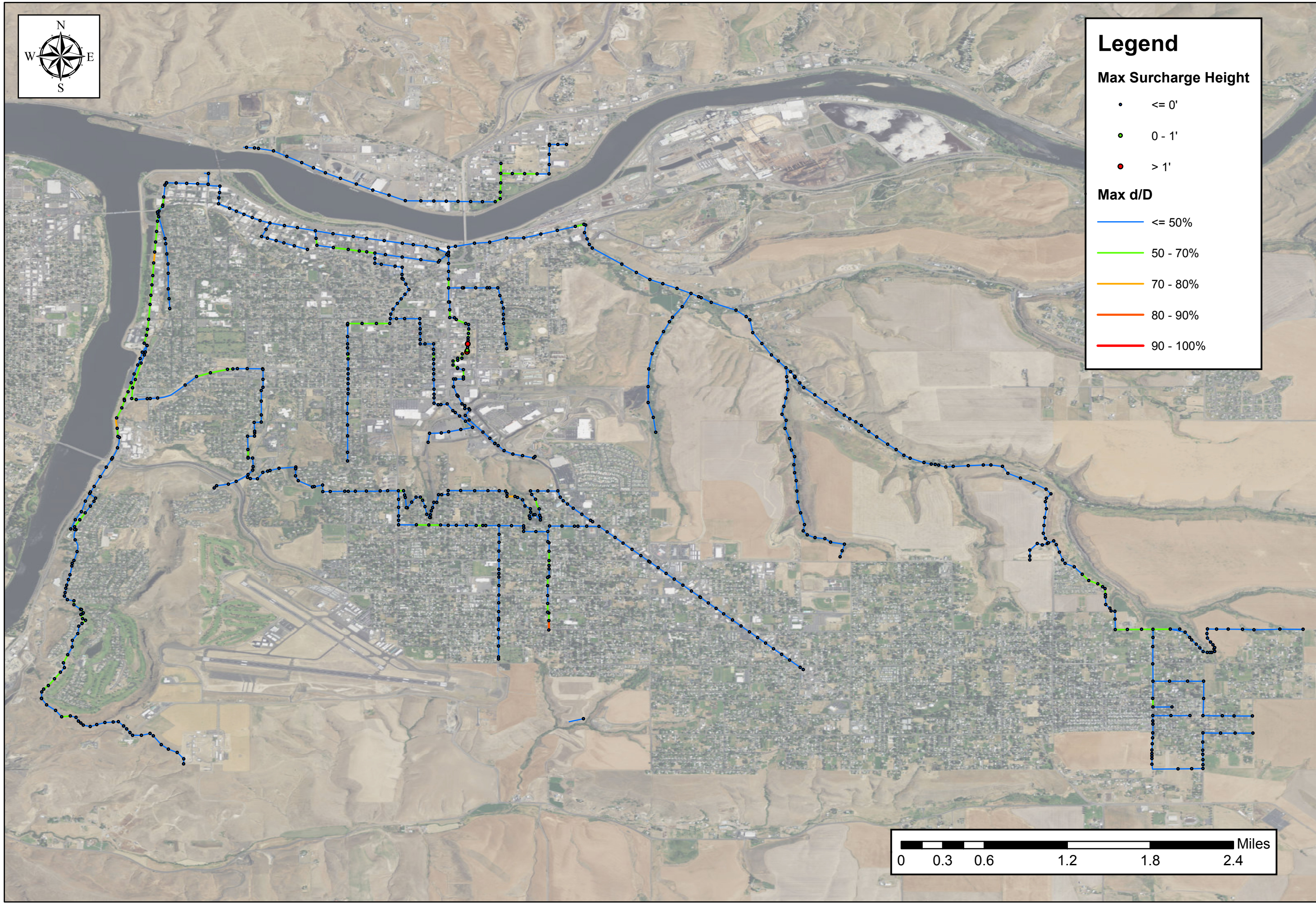
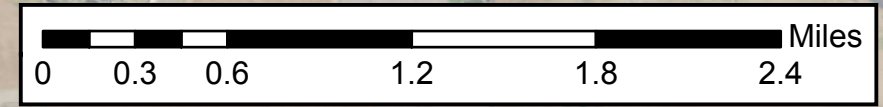
- $\leq 50\%$
- 50 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%



Project:
**AMENDMENT 2 - LEWISTON 2015
WASTEWATER MASTER PLAN**

Title:
**Revised 2035
Hydraulic Deficiencies**

Figure:
3.5





Legend

Max Surge Height

- $\leq 0'$
- 0 - 1'
- $> 1'$

Max d/D

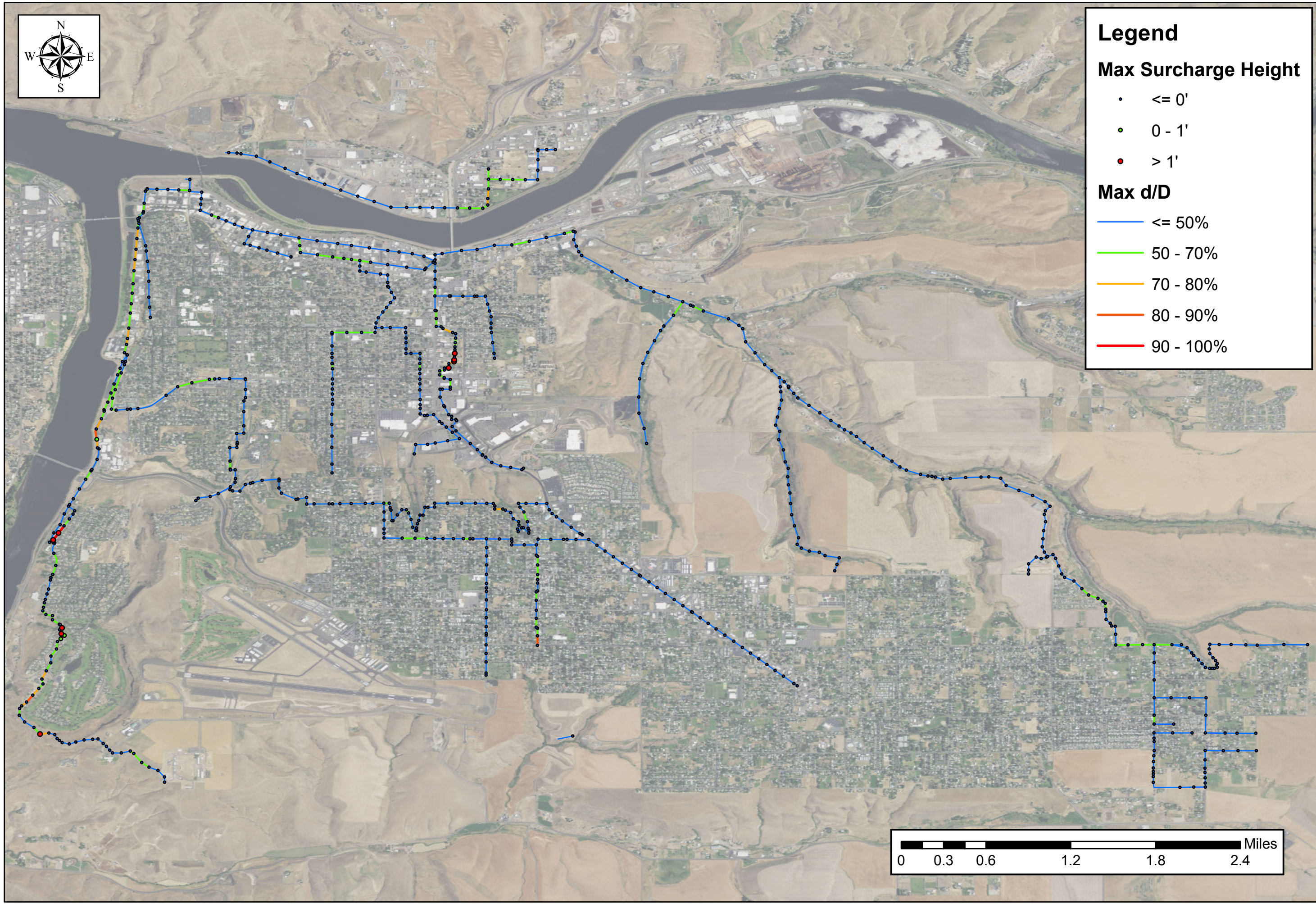
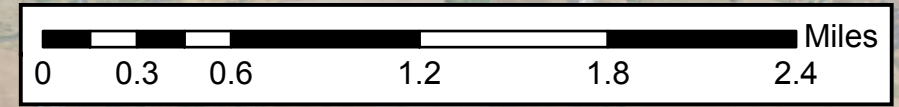
- $\leq 50\%$
- 50 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%

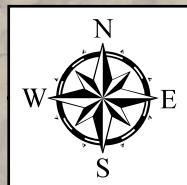


Project:
**AMENDMENT 2 - LEWISTON 2015
WASTEWATER MASTER PLAN**

Title:
**Revised 2055
Hydraulic Deficiencies**

Figure:
3.6

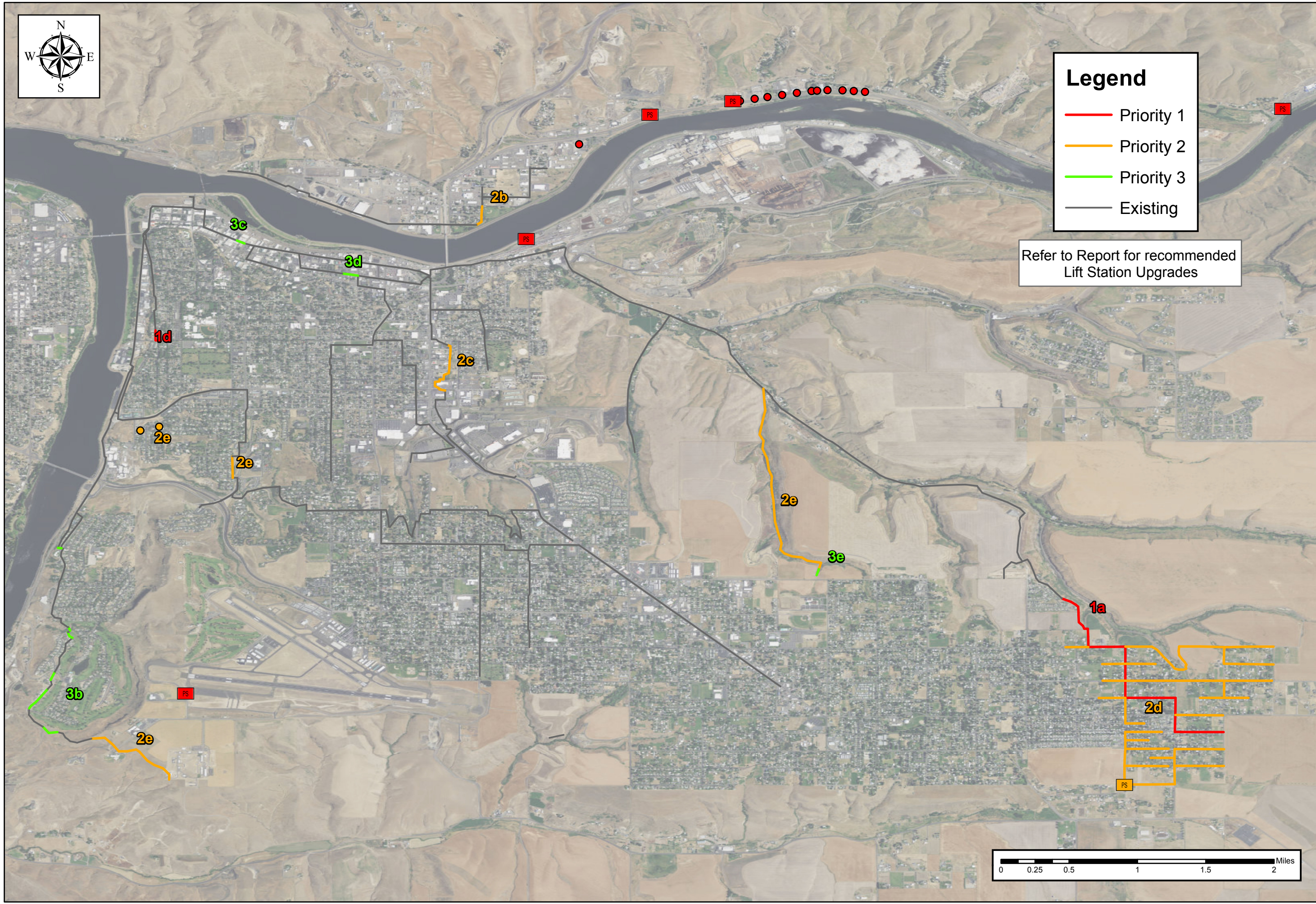
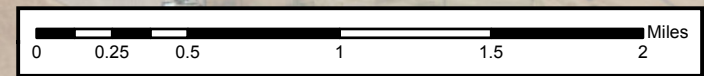




Legend

- Priority 1
- Priority 2
- Priority 3
- Existing

Refer to Report for recommended Lift Station Upgrades



Project:

**AMENDMENT 2 - LEWISTON 2015
WASTEWATER MASTER PLAN**

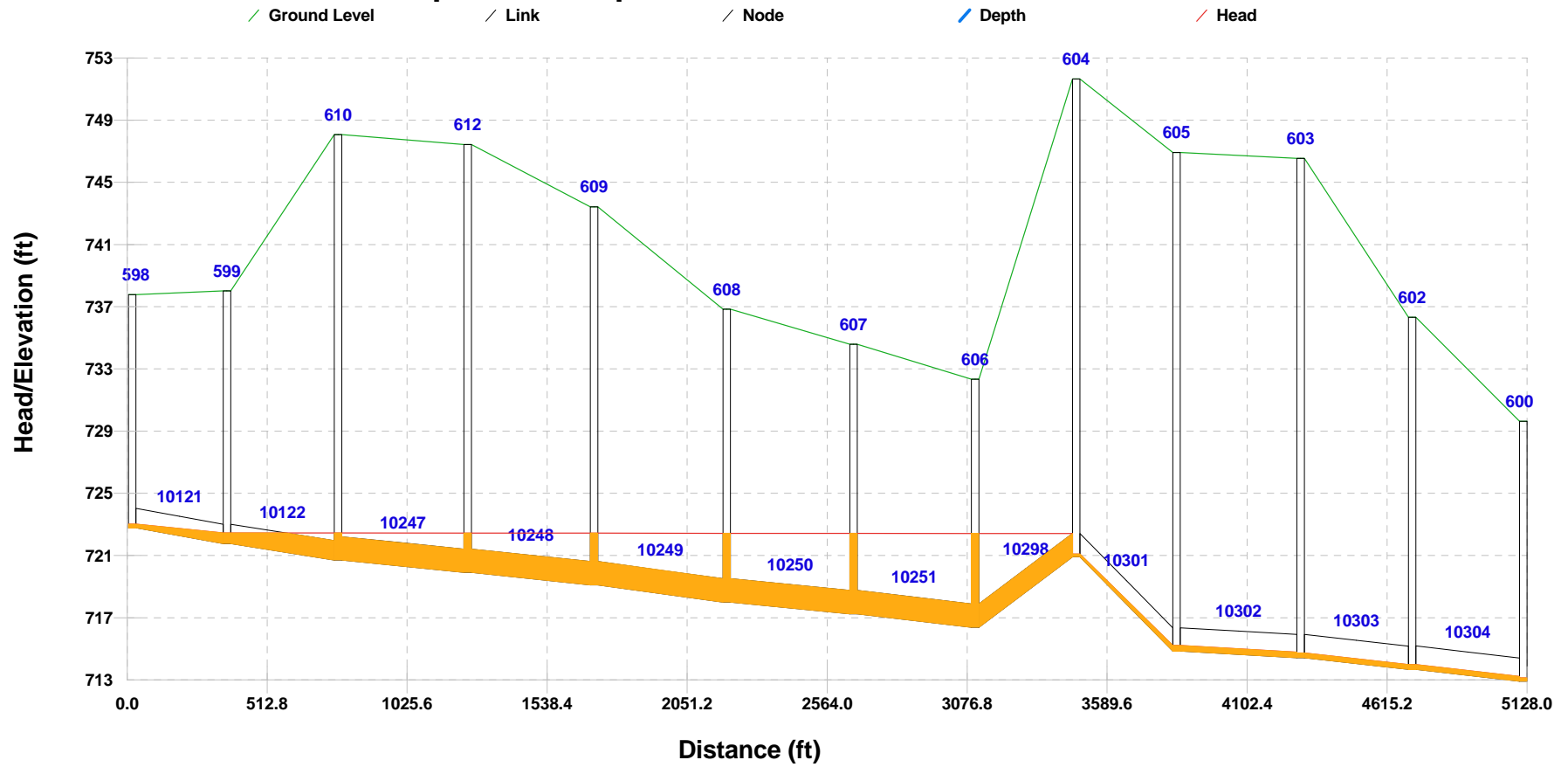
Title:

**Revised Collection
System Master Plan**

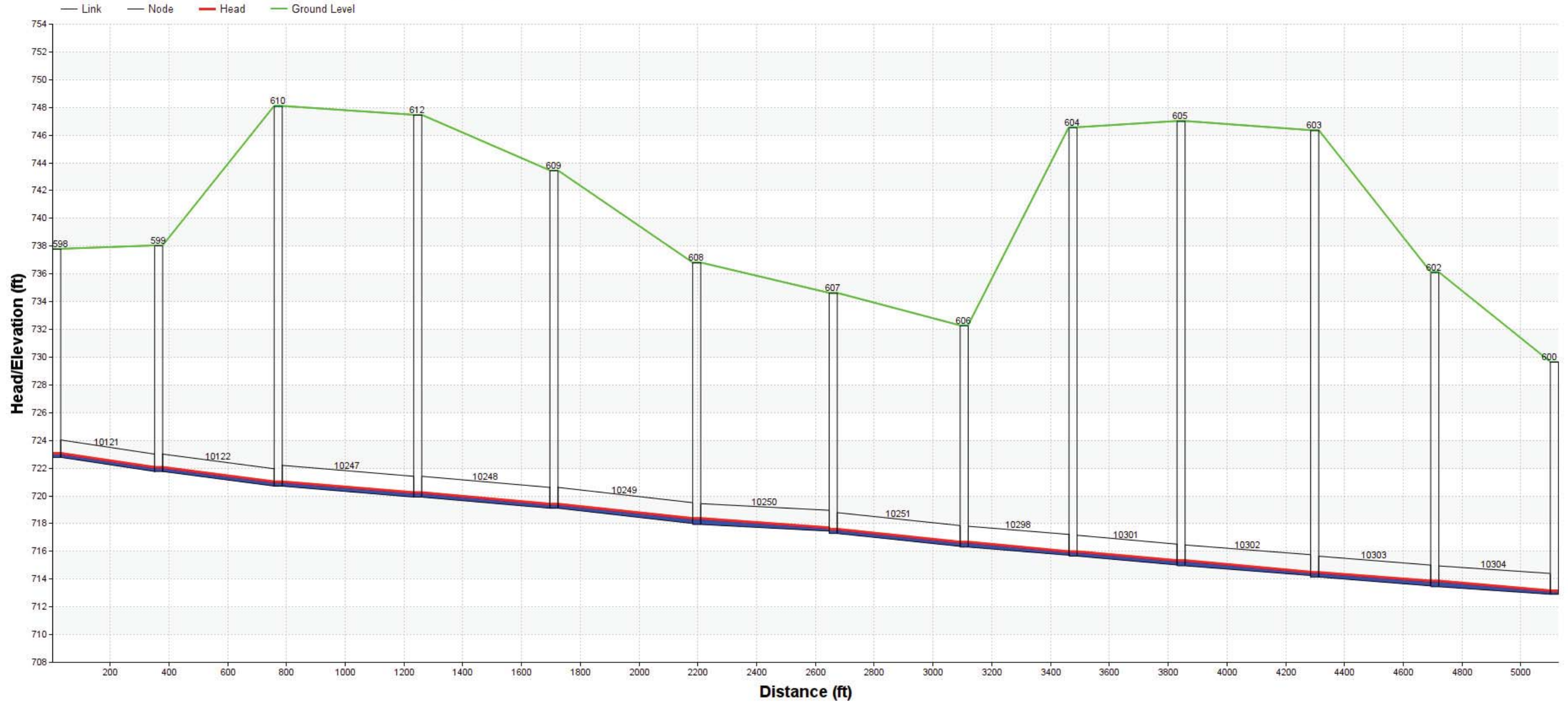
Figure:

8.1

Pipe Profile Upstream of WWTP on North Shore



Survey Updated - Pipe Profile Upstream of WWTP on North Shore



City of Lewiston, Idaho
Wastewater Master Plan
Capital Improvement Plan
 Amendment No. 2

ID#	Item	Cost (2017 Dollars)	City Cost*	LOSD Cost*	Casino*
Priority 1 Improvements (Start in 2015, Complete by 2021)					
1a	East Orchards Sewer Expansion Phase 1	\$ 1,850,000	\$ 1,850,000	\$ -	\$ -
1d	8-inch Pipeline Reconstruction along 11th Ave and Prospect Ave to 10th Ave	\$ 199,000	\$ 191,000	\$ 8,000	\$ -
1e	Lift Station Upgrades	\$ 314,000	\$ 235,000	\$ -	\$ 79,000
1f	Engineering Investigation of access options	\$ 150,000	\$ 150,000	\$ -	\$ -
Total Priority 1 Improvements		\$ 2,513,000	\$ 2,426,000	\$ 8,000	\$ 79,000
Priority 2 Improvements					
2b	24th Street North Pipeline Replacement - 3rd Ave N to 1st Ave N	\$ 223,000	\$ 223,000	\$ -	\$ -
2c	Pipeline Replacement - 11th Ave to 16th Ave between 21st and 23 St	\$ 584,000	\$ 467,000	\$ 117,000	\$ -
2d	East Orchards Sewer Expansion Phase 2	\$ 5,879,000	\$ 5,879,000	\$ -	\$ -
2e	Design and Construction of Access Improvements	\$ 1,395,000	\$ 1,395,000	\$ -	\$ -
Total Priority 2 Improvements		\$ 8,081,000	\$ 7,964,000	\$ 117,000	\$ -
Priority 3 Improvements					
3b	Pipeline Replacment near Lewiston Country Club	\$ 720,000	\$ 720,000	\$ -	\$ -
3c	Main Street Pipeline Reconstruction - 9th St to 6th St	\$ 304,000	\$ 243,000	\$ 61,000	\$ -
3d	G Street Pipeline Reconstruction 15th St to 16th St	\$ 202,000	\$ 161,000	\$ 41,000	\$ -
3e	Pipeline Reconstruction downstream of COSD Warner discharge point	\$ 68,000	\$ 68,000	\$ -	\$ -
Total Priority 3 Improvements		\$ 1,294,000	\$ 1,192,000	\$ 102,000	\$ -

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.
 *Breakdown of cost between City, LOSD, and Casino based on contributing flow percentages at WWTP for FY 2015.

Wastewater Capital Improvements Project
East Orchards Sewer Extension Phase 1

Project Identifier: 1a

Objective: Provide a collection system backbone to address high nitrate concerns and eliminate septic systems.

Potential Issues:

- Extending services to approximately 550 local home owners (for planning purposes included only cost to stub for ROW -- property owner to extend to home)
- Potential grant funding assistance should be explored
- Project could be implemented in phases.
- Final alignments to be determined during desing phase

Project Location:
East end of Lewiston south of Lindsay Creek Rd



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
8-inch Pipe - Excavation, Backfill	LF	\$ 62	1,961	\$ 121,582
10-inch Pipe - Excavation, Backfill	LF	\$ 75	7,500	\$ 562,500
Manholes - 48"	EA	\$ 3,000	38	\$ 113,700
Existing Utility Protection	LF	\$ 4	7,635	\$ 30,540
Half Lane Pavement Repair	LF	\$ 25	7,635	\$ 190,875
Miscellaneous Surface Repair	LF	\$ 5	1,826	\$ 9,130
Traffic Control - Without Flagging	LF	\$ 4	7,635	\$ 30,540
Subtotal				\$ 1,058,867
Mobilization - Percent of Item Cost Sum	%	10%		\$ 105,887
Contingency - % of construction costs	%	35%		\$ 370,603
Total Construction Costs				\$ 1,535,357
Easement/Permitting Support	LS	\$ 7,500		\$ 7,500
Engineering and CMS - % of construction costs	%	20%		\$ 307,071
Total Project Cost (rounded)				\$1,850,000

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Wastewater Capital Improvements Project
Pipeline Reconstruction along 11th Ave and
Prospect Ave to 10th Ave

Project Identifier: 1d

Objectives: Abandon undersized, problematic line running through alley and under structures.

Potential Issues:

- Maintaining services during construction.
- Rerouting existing services will require acces to private residences and replumbing within homes

Project Location:
Corner of 11th Avenue and Propsect Avenue



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
8-inch Pipe - Excavation, Backfill	LF	\$ 62	530	\$ 32,860
Manholes - 48"	EA	\$ 3,000	5	\$ 15,000
Existing Utility Protection	LF	\$ 4	530	\$ 2,120
Half Lane Pavement Repair	LF	\$ 25	530	\$ 13,250
Reconnect Services	EA	\$ 3,500	12	\$ 42,000
Pipe Boring	LF	\$ 650	0	\$ -
Traffic Control - With Flagging	LS	\$ 2,500	0	\$ -
Traffic Control - Without Flagging	LF	\$ 4	530	\$ 2,120
Subtotal				\$ 107,350
Mobilization - Percent of Item Cost Sum	%	10%		\$ 10,735
Contingency - % of construction costs	%	35%		\$ 37,573
Total Construction Costs				\$ 155,658
Geotechnical Investigation		\$ 4,000		\$ 4,000
Engineering and CMS - % of construction costs	%	25%		\$ 38,914
Total Project Cost (rounded)				\$199,000

Wastewater Capital Improvements Project
Lift Station Upgrades

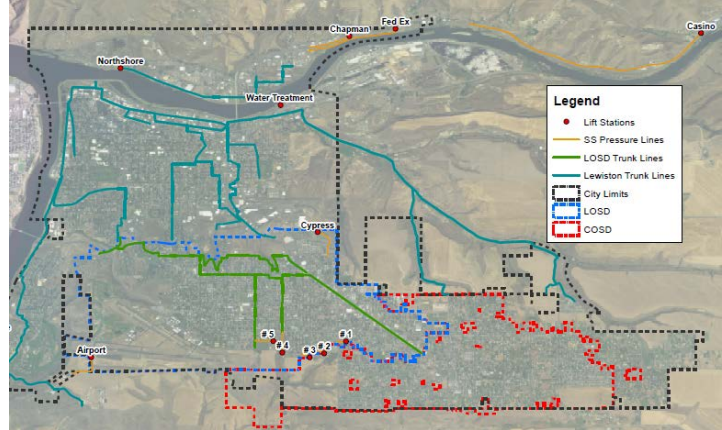
Project Identifier: 1e

Objective: Correct existing deficiencies identified at each lift station during site visits in September 2014.

Potential Issues:

- Maintaining Operation during construction activities.
- Potential high groundwater

Project Location:
Airport Lift Station, Chapman Lift Station, Fed Ex Lift Station, Water Plant Lift Station, and Casino Lift Station.



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
Airport Lift Station Upgrades (New Lid, Security Fencing, Fall Protection)	LS	\$ 10,600	1	\$ 10,600
Chapman Lift Station Upgrades (Security Fencing, Fall Protection)	LS	\$ 6,400	1	\$ 6,400
Fed Ex Lift Station Upgrades				
Replace Corroded Cable Hanger in Wet Well with Stainless Steel	LS	\$ 1,100	1	\$ 1,100
Replace Wet Well Cover	LS	\$ 3,200	1	\$ 3,200
Provide Fall Protection in Wet Well	LS	\$ 2,100	1	\$ 2,100
Rehabilitate/Replace Down Stream Manholes (assumes 10)	EA	\$ 2,100	10	\$ 21,000
Install an Air Release Valve within Existing Valve Vault	LS	\$ 3,700	1	\$ 3,700
Water Plant Lift Station Upgrades				
Install Backwater/Check Valve	LS	\$ 10,600	1	\$ 10,600
New Pumps with VFDs	EA	\$ 26,500	2	\$ 53,000
Extend Backup Power to Lift Station	LS	\$ 12,700	1	\$ 12,700
Provide Fall Protection in Wet Well	LS	\$ 2,100	1	\$ 2,100
Casino Lift Station Upgrades				
Install Security Fencing and Fall Protection	LS	\$ 6,400	1	\$ 6,400
Install a Grease Aerator	LS	\$ 15,900	1	\$ 15,900
Rehabilitate/Replace Down Stream Manholes (assumes 10)	EA	\$ 2,100	10	\$ 21,000
Subtotal				\$ 169,800
Mobilization - Percent of Item Cost Sum	%	10%		\$ 16,980
Contingency - % of construction costs	%	35%		\$ 59,430
Total Construction Costs				\$ 246,210
Engineering and CMS - % of construction costs	%	25%		\$ 61,553
Groundwater Infiltration Investigation	LS	\$ 6,000	1	\$ 6,000
Total Project Cost (rounded)				\$314,000

Wastewater Capital Improvements Project
24th Street North Pipeline Upgrade, 3rd Ave N to 1st Ave N

Project Identifier: 2b

Objective: Increase pipeline capacity to accommodate future growth.

Potential Issues:

- Maintaining services during construction.
- Consider evaluating pipe bursting during pre-design

Project Location:
Along 24th Street from 1st Avenue to 3rd Avenue



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
12-inch Pipe - Excavation, Backfill	LF	\$ 95	780	\$ 74,100
Manholes - 48"	EA	\$ 3,000	4	\$ 12,000
Existing Utility Protection	LF	\$ 4	780	\$ 3,120
Traffic Control - Without Flagging	LF	\$ 4	780	\$ 3,120
Half Lane Pavement Repair	LF	\$ 25	780	\$ 19,500
Reconnect Services	LF	\$ 14	780	\$ 10,920
Subtotal				\$ 122,760
Mobilization - Percent of Item Cost Sum	%	10%		\$ 12,276
Contingency - % of construction costs	%	35%		\$ 42,966
Total Construction Costs				\$ 178,002
Engineering and CMS - % of construction costs	%	25%		\$ 44,501
Total Project Cost (rounded)				\$223,000

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Wastewater Capital Improvements Project
Pipeline Upgrades from 11th to 16th Avenue
between 21st St and 23rd St

Project Identifier: 2c

Objective: Increase pipe capacity to accommodate future growth.

Potential Issues:

- Maintaining services during construction.
- Consider evaluating rerouting pipelines during pre-design
- Consider evaluating pipe bursting during pre-design

Project Location:
From 11th Avenue to 16th Avenue between 21st Street
and 23rd Street



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
10-inch Pipe - Excavation, Backfill	LF	\$ 75	630	\$ 47,250
12-inch Pipe - Excavation, Backfill	LF	\$ 95	1630	\$ 154,850
Manholes - 48"	EA	\$ 3,000	20	\$ 60,000
Existing Utility Protection	LF	\$ 4	2260	\$ 9,040
Traffic Control - Without Flagging	LF	\$ 4	880	\$ 3,520
Half Lane Pavement Repair	LF	\$ 25	880	\$ 22,000
Miscellaneous Surface Repair	LF	\$ 5	1380	\$ 6,900
Reconnect Services	LF	\$ 14	2260	\$ 31,640
Subtotal				\$ 335,200
Mobilization - Percent of Item Cost Sum	%	10%		\$ 33,520
Contingency - % of construction costs	%	35%		\$ 117,320
Total Construction Costs				\$ 486,040
Engineering and CMS - % of construction costs	%	20%		\$ 97,208
Total Project Cost (rounded)				\$584,000

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Wastewater Capital Improvements Project
East Orchards Sewer Extension Phase 2

Project Identifier: 2d

Objective: To address high nitrate concerns and eliminate septic systems.

Potential Issues:

- Extending services to approximately 550 local home owners (for planning purposes included only cost to stub for ROW -- property owner to extend to home)
- Potential grant funding assistance should be explored
- Project could be implemented in phases.
- Final alignments to be determined during desing phase

Project Location:
East end of Lewiston south of Lindsay Creek Rd



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost	
8-inch Pipe - Excavation, Backfill	LF	\$ 62	29,939	\$ 1,856,218	
Manholes - 48"	EA	\$ 3,000	86	\$ 256,800	
Existing Utility Protection	LF	\$ 4	7,120	\$ 28,480	
Half Lane Pavement Repair	LF	\$ 25	7,120	\$ 178,000	
Miscellaneous Surface Repair	LF	\$ 5	22,819	\$ 114,095	
Traffic Control - Without Flagging	LF	\$ 4	7,120	\$ 28,480	
Service Stub to property line	EA	\$ 1,000	550	\$ 550,000	
Smaller Lift Station		\$ -	\$ 450,000	1	\$ 450,000
Subtotal				\$ 3,462,073	
Mobilization - Percent of Item Cost Sum	%	10%		\$ 346,207	
Contingency - % of construction costs	%	30%		\$ 1,038,622	
Total Construction Costs				\$ 4,846,902	
Easement/Permitting Support	LS	\$ 12,500		\$ 12,500	
Geotechnical Support	LS	\$ 10,000		\$ 10,000	
Lift Station Site Purchase	LS	\$ 40,000		\$ 40,000	
Engineering and CMS - % of construction costs	%	20%		\$ 969,380	
Total Project Cost (rounded)		\$5,879,000			

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**Wastewater Capital Improvements Project
Design and Construction of Access Roads**

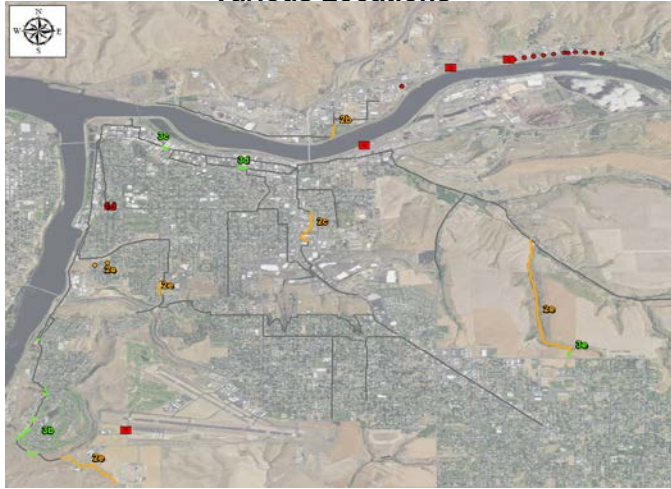
Project Identifier: 2e

Objective: Construct a road that will provide the City with access to existing sewer lines with limited access

Potential Issues:

- Constructing in wetlands
- Standing water along pipe path
- Limited access for construction

**Project Location:
Various Locations**



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
Gravel Road Construction (12' Wide)	LF	\$ 50	13,000	\$ 650,000
Raise Manholes and surrounding ground	EA	\$ 4,000	45	\$ 180,000
Subtotal				\$ 830,000
Mobilization - Percent of Item Cost Sum	%	10%		\$ 83,000
Contingency - % of construction costs	%	30%		\$ 249,000
Total Construction Costs				\$ 1,162,000
Engineering and CMS - % of construction costs	%	20%		\$ 232,400
Total Project Cost (rounded)				\$1,395,000

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Wastewater Capital Improvements Project
Pipelines Upgrades near Lewiston Country Club

Project Identifier: 3b

Objective: Increase pipe capacity to accommodate future development

Potential Issues:

- Maintaining services during construction.
- Traffic control

Project Location:
Various Locations west of Lewiston Airport



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
8-inch Pipe - Excavation, Backfill	LF	\$ 62	100	\$ 6,200
12-inch Pipe - Excavation, Backfill	LF	\$ 95	2160	\$ 205,200
Manholes - 48"	EA	\$ 3,000	17	\$ 51,000
Existing Utility Protection	LF	\$ 4	972	\$ 3,887
Rock Removal	LF	\$ 40	1130	\$ 45,200
Traffic Control - With Flagging	LF	\$ 8	972	\$ 7,774
Half Lane Pavement Repair	LF	\$ 25	972	\$ 24,293
Reconnect Services	LF	\$ 28	2260	\$ 63,280
Miscellaneous Surface Repair	LF	\$ 5	1288	\$ 6,441
Subtotal				\$ 413,275
Mobilization - Percent of Item Cost Sum	%	10%		\$ 41,328
Contingency - % of construction costs	%	35%		\$ 144,646
Total Construction Costs				\$ 599,249
Engineering and CMS - % of construction costs	LF	20%		\$ 119,850
Total Project Cost (rounded)				\$720,000

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Wastewater Capital Improvements Project
Main Street Pipeline Reconstruction, 9th St to
6th St

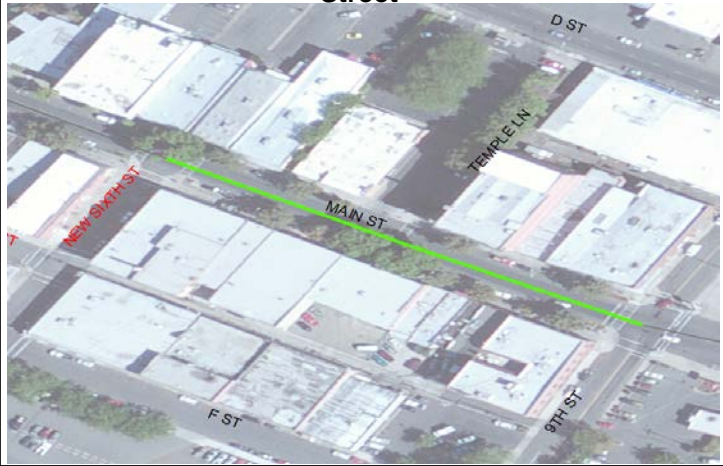
Project Identifier: 3c

Objective: Increase pipe slope to increase capacity.

Potential Issues:

- Maintaining services during construction.
- Construction in downtown area.

Project Location:
Along Main Street Between New Sixth Street and 9th
Street



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
36-inch Pipe - Excavation, Backfill	LF	\$ 210	490	\$ 102,900
Manholes - 72"	EA	\$ 5,000	3	\$ 15,000
Existing Utility Protection	LF	\$ 4	490	\$ 1,960
HWY Repair	LF	\$ 65	490	\$ 31,850
Traffic Control - Without Flagging	LF	\$ 4	490	\$ 1,960
Reconnect Services	LF	\$ 28	490	\$ 13,720
Subtotal				\$ 167,390
Mobilization - Percent of Item Cost Sum	%	10%		\$ 16,739
Contingency - % of construction costs	%	35%		\$ 58,587
Total Construction Costs				\$ 242,716
Engineering and CMS - % of construction costs	LF	25%		\$ 60,679
Total Project Cost (rounded)				\$304,000

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Wastewater Capital Improvements Project
G Street Pipeline Reconstruction, 15th St to
16th St

Project Identifier: 3d

Objective: Increase pipe slope to increase capacity.

Potential Issues:
- Maintaining services during construction.

Project Location:
Along G Street from 15th Street to 16th Street



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
30-inch Pipe - Excavation, Backfill	LF	\$ 170	430	\$ 73,100
Manholes - 60"	EA	\$ 4,000	3	\$ 12,000
Existing Utility Protection	LF	\$ 4	430	\$ 1,720
Traffic Control - Without Flagging	LF	\$ 4	430	\$ 1,720
Half Lane Pavement Repair	LF	\$ 25	430	\$ 10,750
Reconnect Services	LF	\$ 28	430	\$ 12,040
Subtotal				\$ 111,330
Mobilization - Percent of Item Cost Sum	%	10%		\$ 11,133
Contingency - % of construction costs	%	35%		\$ 38,966
Total Construction Costs				\$ 161,429
Engineering and CMS - % of construction costs	LS	25%		\$ 40,357
Total Project Cost (rounded)				\$202,000

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Wastewater Capital Improvements Project
Pipeline Reconstruction downstream of
COSD Warner discharge point

Project Identifier: 3e

Objective: Increase pipe slope to increase capacity.

Potential Issues:
- Maintaining services during construction.



General Line Items	Unit	Unit Price	Estimated Quantity	2017 Cost
18-inch Pipe - Excavation, Backfill	LF	\$ 115	250	\$ 28,750
Manholes - 48"	EA	\$ 3,000	2	\$ 6,000
Miscellaneous Surface Repair	LF	\$ 5	250	\$ 1,250
Subtotal				\$ 36,000
Mobilization - Percent of Item Cost Sum	%	10%		\$ 3,600
Contingency - % of construction costs	%	35%		\$ 12,600
Total Construction Costs				\$ 52,200
Engineering and CMS - % of construction costs	LS	30%		\$ 15,660
Total Project Cost (rounded)				\$68,000

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